



MAURITIUS METEOROLOGICAL SERVICES



CLIMATE BULLETIN SEPTEMBER 2019

Introduction

Above normal temperatures and slightly below normal rainfall were observed over Mauritius during the month of September 2019. Neutral ENSO conditions prevailed in the Pacific region. The Indian Ocean Dipole was positive indicating a warm sea surface temperature anomaly in the central and western Indian Ocean. The Madden Julian Oscillation (MJO) evolved in the southern hemisphere during the last week and it enhanced the rainfall to some extent.

1. Rainfall

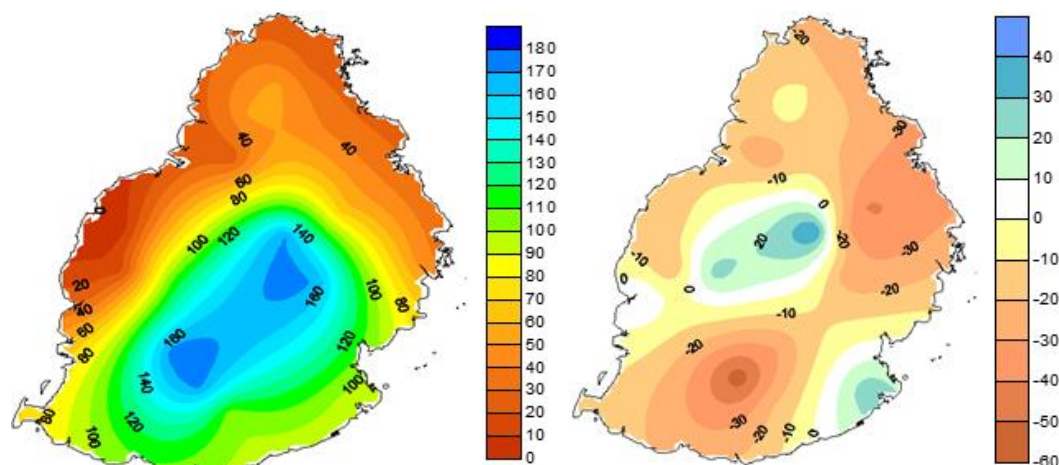


Fig. 1: (a) Observed rainfall (mm)

(b) rainfall anomaly (mm)

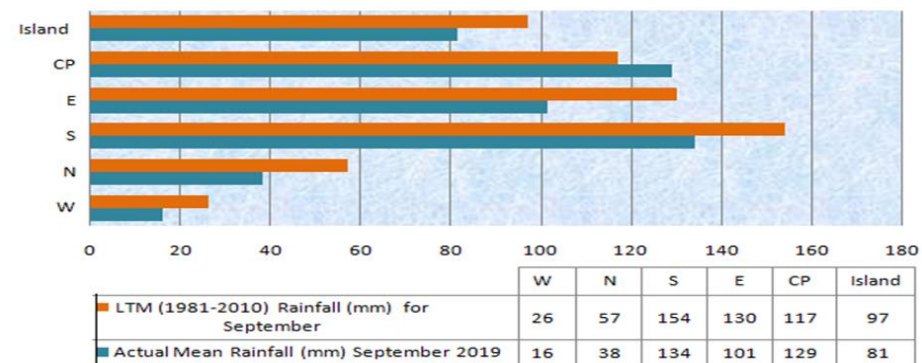
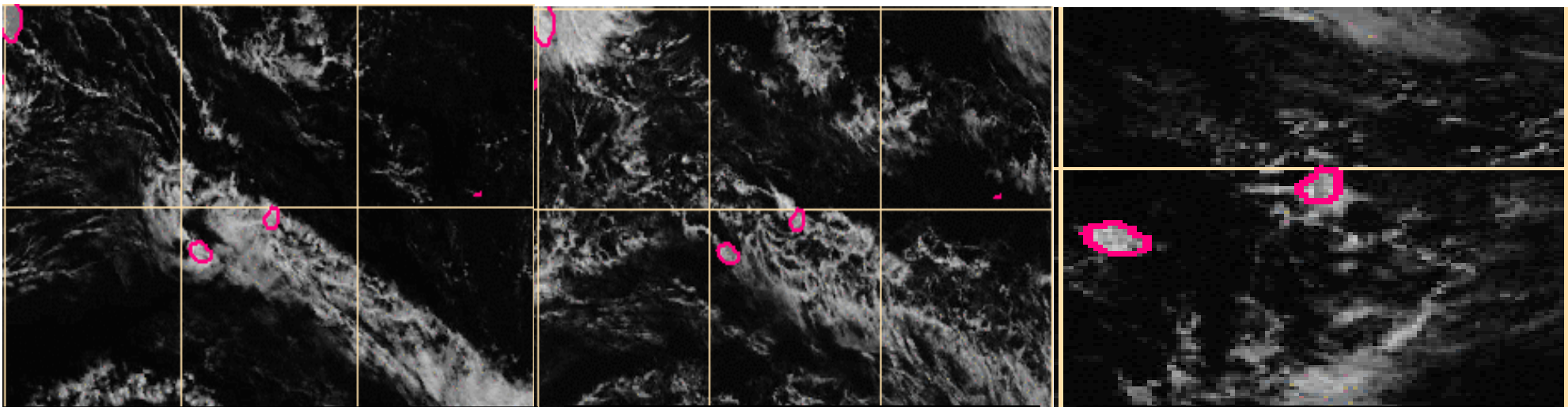


Fig. 2: Regional rainfall distribution (based on 23 stations) (mm)

September 2019 received slightly below normal rainfall amounting to 81 mm, representing 84% of the long term mean for this month. Rainfall was mainly associated with easterly waves and perturbed trades. Showers were locally of moderate intensity on the 4, 21 to 22 and on the 26. The highest rainfall intensity recorded was 22.8 mm/h at Plaisance on 26 September 2019. Overall, almost all regions of the island had slightly below normal rainfall (Fig 1(b)), except over the regions of Plaisance, Grand Providence and parts of the Central Plateau, where the mean monthly rainfall exceeded the normal by 20 mm.



(a) Remnants Clouds associated with a cold front on 18

(b) Clouds associated with an instability line on 21

(c) Clouds associated with an instability line on 26

Fig 3: Weather systems during September 2019

2. Surface Temperature

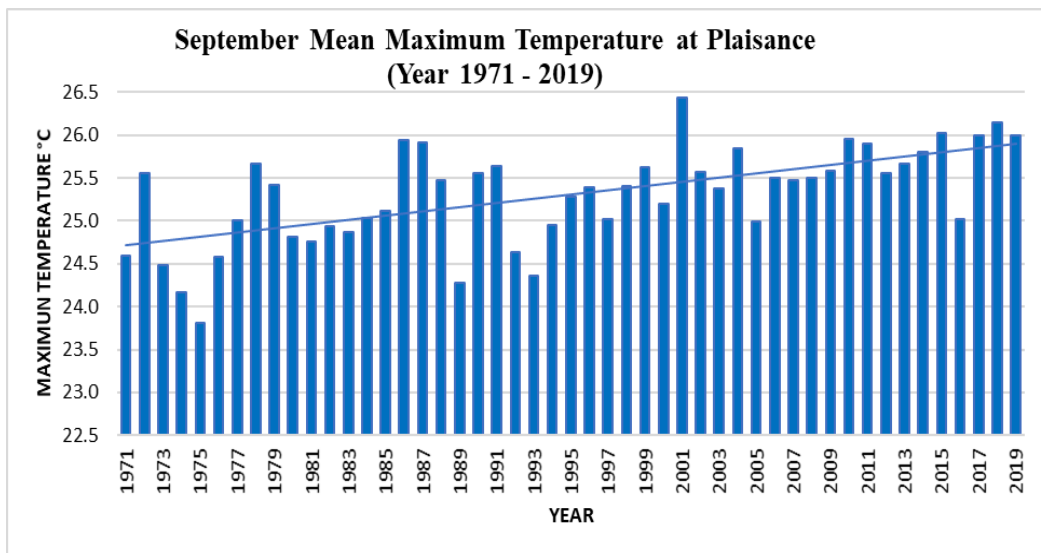


Fig. 4(a): Maximum temperature trend during September from 1971-2019

September 2019 has the fourth warmest day temperature for September on record since 1971 (based on mean maximum temperature recorded at Plaisance)

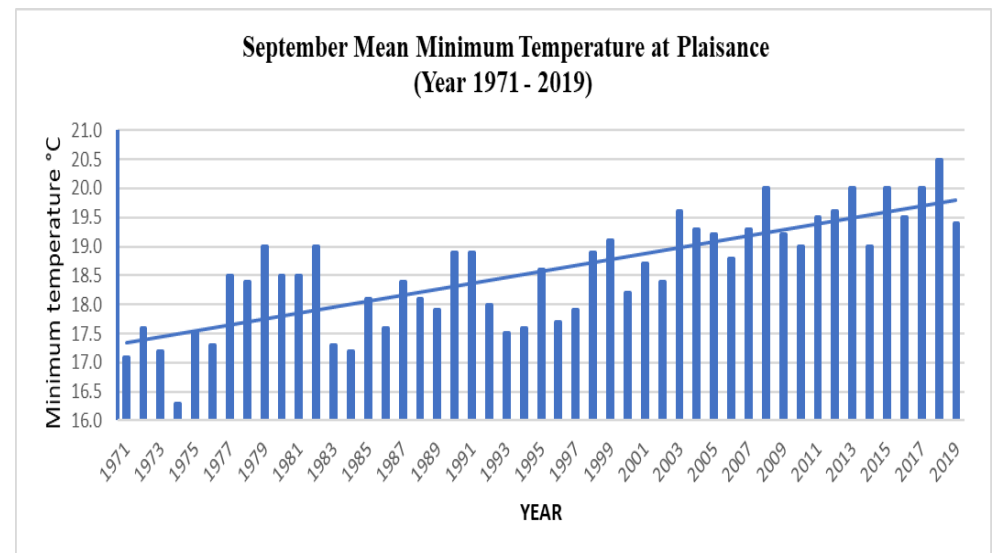


Fig. 4(b): Minimum temperature trend during September from 1971-2019

September 2019 has the tenth warmest night temperature for September on record since 1971 (based on mean minimum temperature recorded at Plaisance)

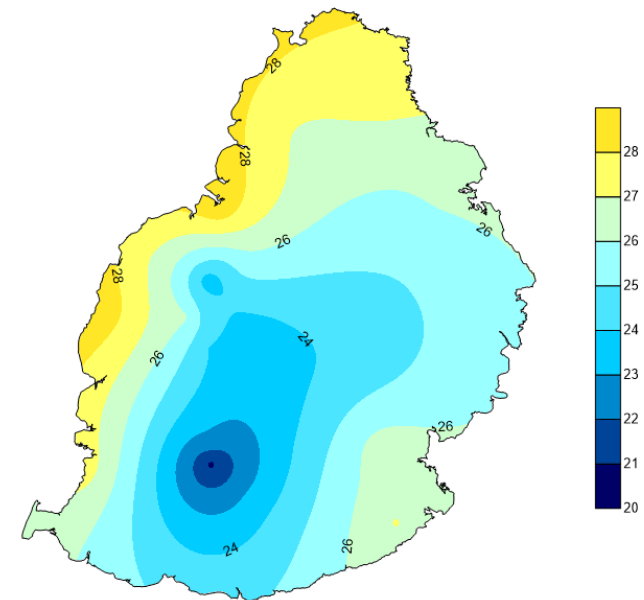
Day temperature was most of the time above normal to slightly above during September 2019. However, cold air emanating from the sub-tropical anticyclones occasioned normal to locally below normal temperature on few instances.

Across the island, the departure for monthly mean maximum temperature ranged between -0.1 to 2.1 °C. The highest anomaly for maximum temperature of 5.2 °C was recorded at Mon Desert Alma on 06 and the lowest anomaly of -2.9 °C was recorded at Arnaud on the 08. The highest temperature recorded was 31 °C at Port Louis on 26.

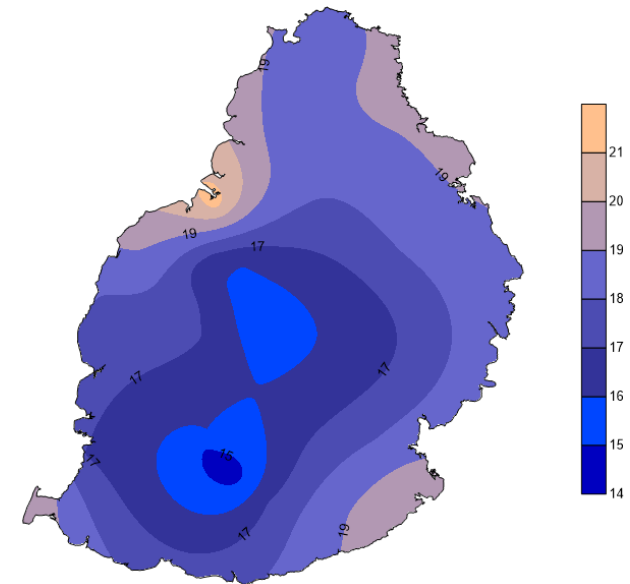
The night time temperature was mainly normal to slightly above except to the northwest where it was slightly below.

The departure for monthly mean minimum temperature ranged between -0.6 to 1.7 °C and the highest number of cold nights was 06 recorded at Constance. The highest anomaly for minimum temperature of 4.7 °C was recorded at Digue Seche on 28 and the lowest anomaly of -4.2 °C was recorded at Gros Cailloux on the 21.

The lowest minimum temperature of 12.2 °C was recorded at Bois Cheri on 12. A new record of minimum temperature of 15.2 °C was observed at Gros Cailloux on the 21 (previous 16.1 °C).



(a)



(b)

Fig. 5: (a) Maximum (b) Minimum temperature distribution

Some stations had up to 16 warm days;
(maximum temperature anomaly (anomax) >2°C).

Stations	Highest anomax (°C)	Number of warm days
Union Park MSIRI	3.8	16
M L Rouillard	3.8	15
Mon Desert Alma	5.2	15
Quatre-Bornes	4.4	15
Riche en Eau	4.9	15
BoisCheri	3.9	13
Medine	3.4	12
Arnaud	3.0	12
Grand Bassin	4.4	12
Albion	3.6	9

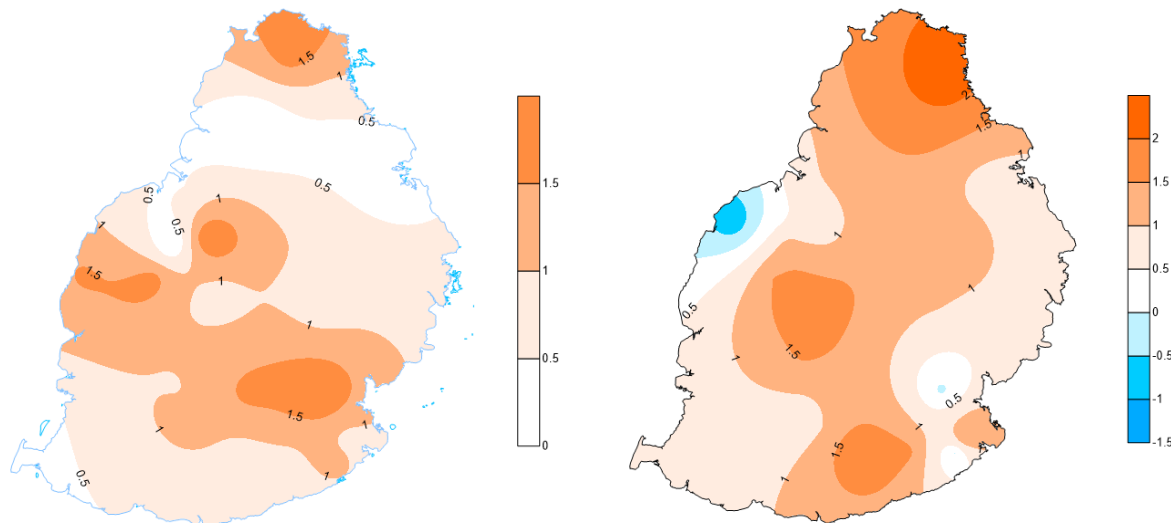


Fig. 6: (a) Maximum temperature anomaly

(b) Minimum temperature anomaly

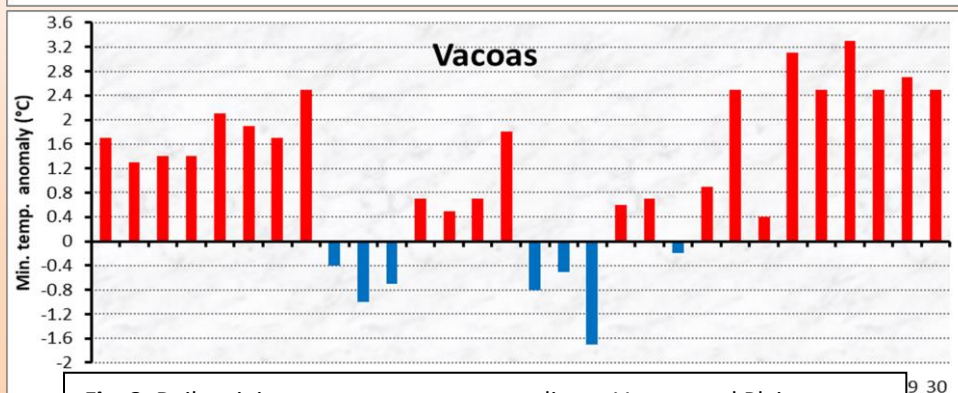
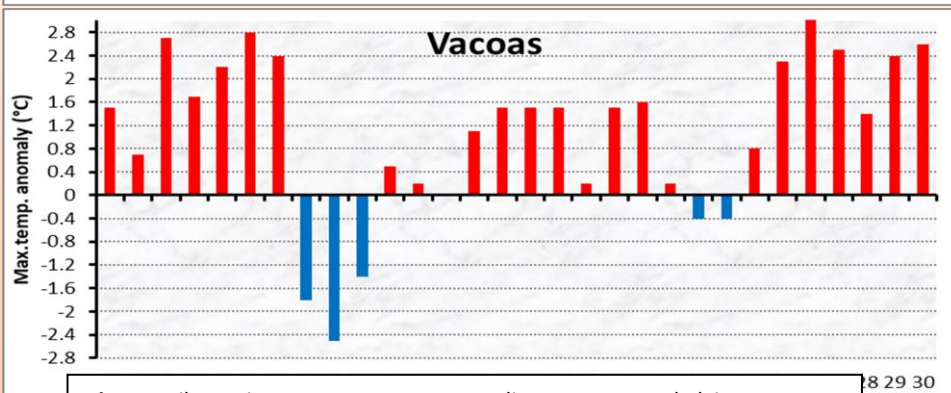
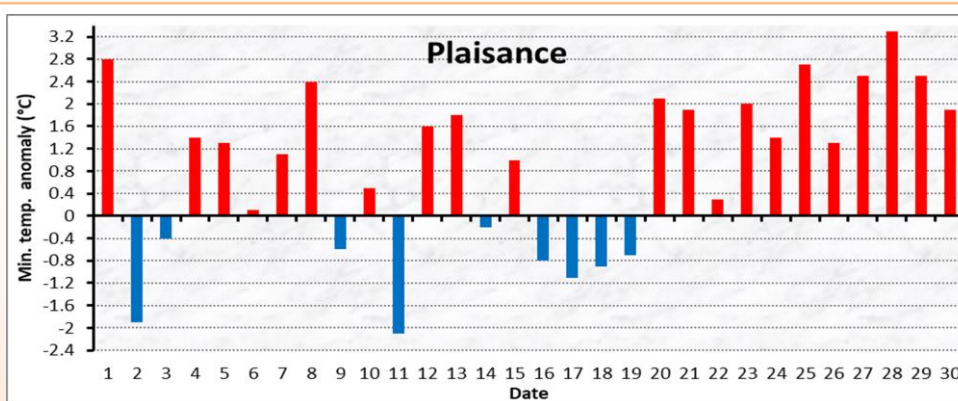
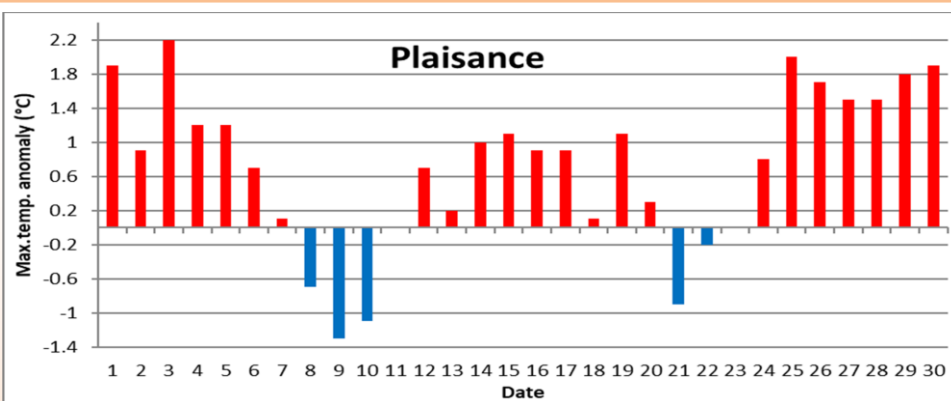


Fig. 7: Daily maximum temperature anomalies at Vacoas and Plaisance

Fig. 8: Daily minimum temperature anomalies at Vacoas and Plaisance

3. Sunshine and Humidity

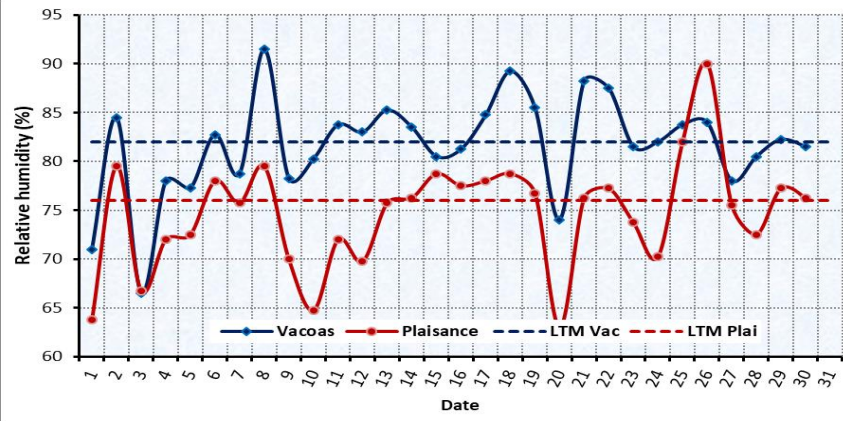


Fig. 9: Daily Relative Humidity: Vacoas (blue) and Plaisance (red)

The average monthly relative humidity (RH) was mainly normal for both Vacoas (82 %) and Plaisance (75 %). The highest RH at Plaisance was recorded on 26 reaching 90 % and 92 % at Vacoas on 08 (Fig 9). The lowest RH at Plaisance, 63 %, was recorded on the 20 associated with a cold air invasion from the anticyclone.

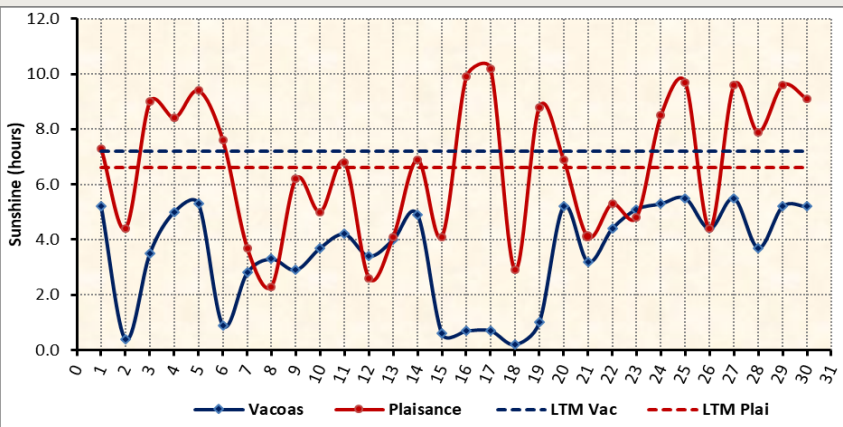


Fig. 10: Daily sunshine hours: Vacoas (blue) and Plaisance (red)

Monthly mean sunshine hours were close to normal at Plaisance with anomaly of 0.1 hours and below normal at Vacoas with -3.7 hours. Plaisance had daily sunshine hours which varied significantly while for Vacoas, it was below the monthly average for the whole month (Fig 10). Close to nil sunshine hours was observed on 18 at Vacoas when remnants clouds associated with a modified cold front crossed the island. (Fig 3(a)).

4. Winds

Trade winds prevailed over Mauritius for most of September 2019 (Fig 11) under the influence of anticyclones moving to the south of the Mascarenes. In between the passage of the anticyclones, light wind was observed at Plaisance. The magnitude of the observed trade wind was mainly within the range of 10 to 20 km/h. The highest gust of 76 km/h recorded was at Champ de Mars on the 09.

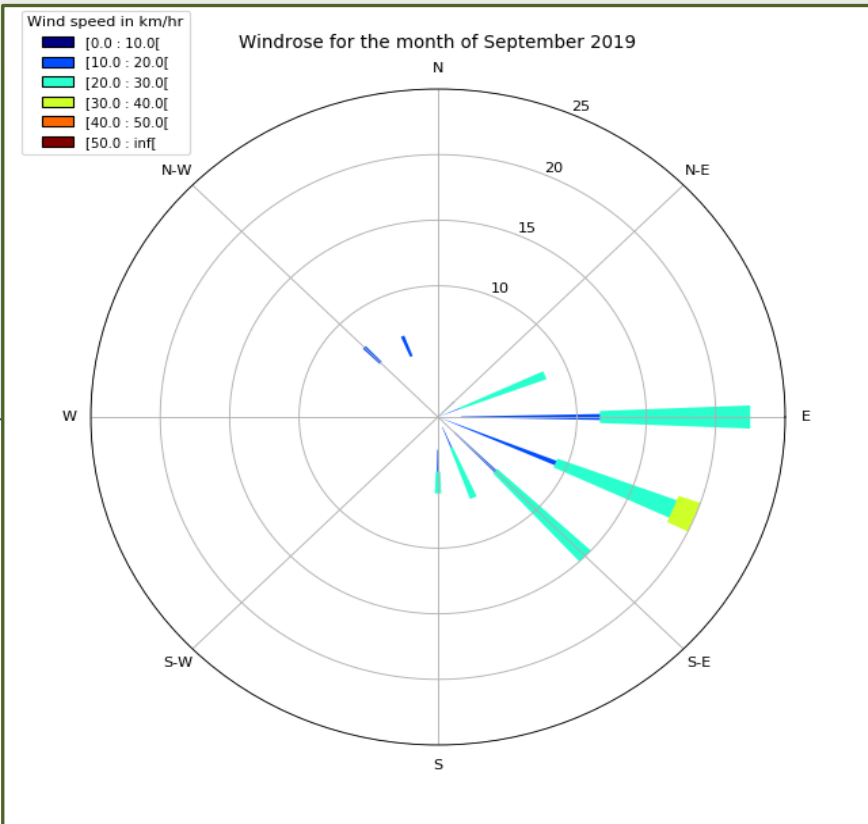


Fig. 11: Wind frequency at Plaisance

FORECAST FOR OCTOBER-NOVEMBER-DECEMBER (OND)

In the month of September, neutral ENSO condition has persisted as expected in the previous forecast run. The most dominant features for OND will be the IOD which is currently at its peak intensity and is expected to remain at moderate intensity during the forecast period.

In the previous SON statistical run near normal rainfall was predicted. The month of September recorded slightly below normal rainfall representing 84% (81mm) of the long-term mean.

Consensus forecast for Mauritius

- Statistical model is expecting slightly above normal rainfall for OND (Fig. 14(a)). In the month of October, two marked rainy episodes in the first half brought above normal 115% (89mm) for that period. However, based on climatology and prevalent large-scale conditions, the most appropriate monthly rainfall is being reviewed as follows: slightly above normal for October~89mm, normal for November~80 mm and slightly above normal for December~205mm.
- Mean temperatures will continue to remain above normal.

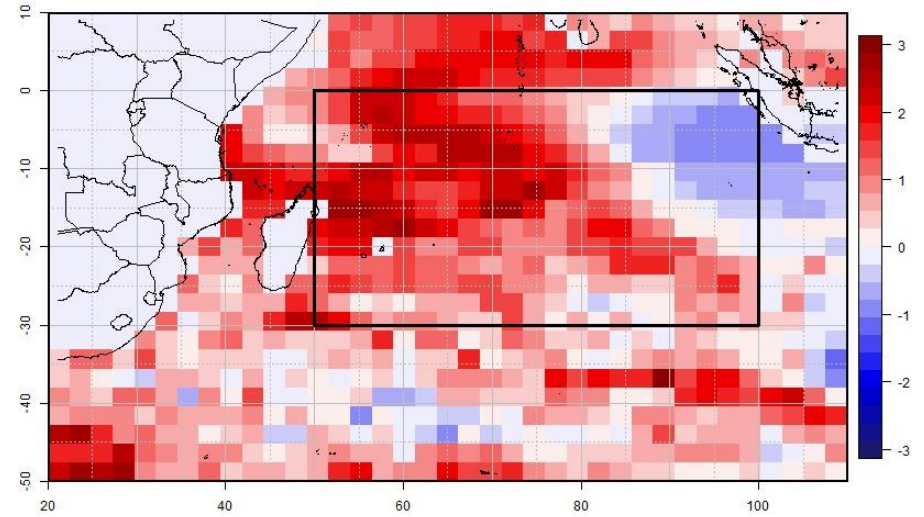


Figure 12: OND sea surface temperature anomaly chart

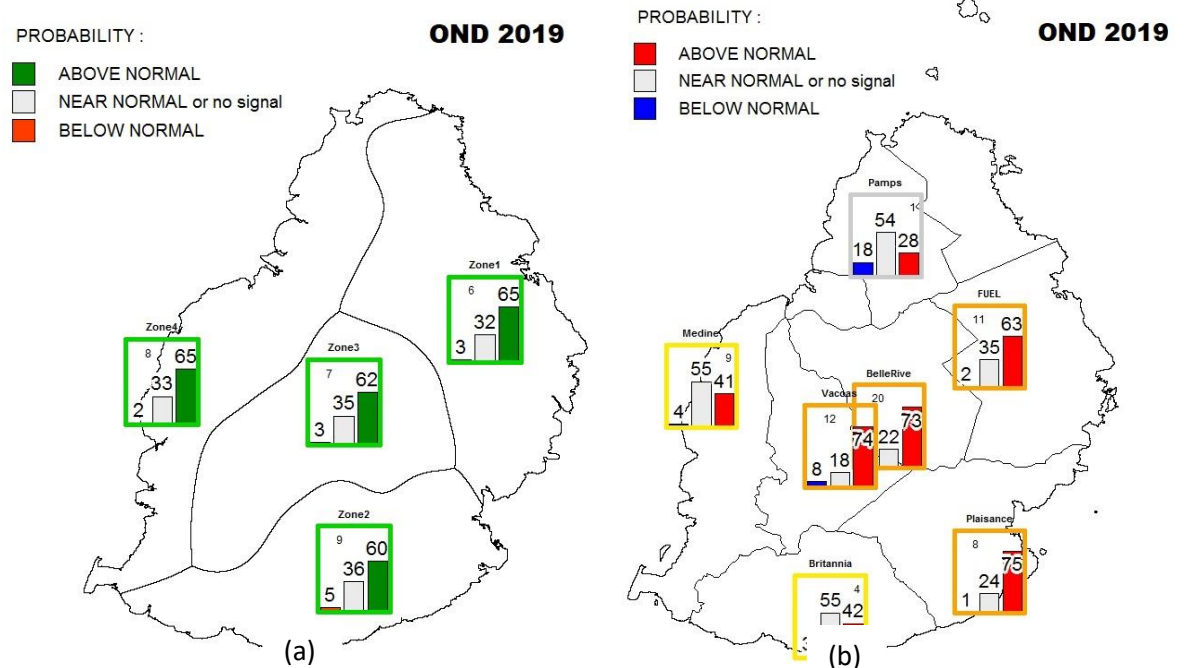


Fig. 13: Statistical Model Forecast of (a) rainfall and (b) temperature

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